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GROUP 3600

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/054,253
Filing Date: January 22, 2002
Appellant(s): RODE, JOHN E.

Victor A. Cardona
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/29/05.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct. Note that the status identifier for claim 17 as shown in the "Appendix" is incorrect. The status identifier should have been --(Withdrawn)-- instead of "(Original)".

(4) Status of Amendments After Final

The Appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Ground of Rejection to be Reviewed on Appeal

The Appellant's statement of ground of rejection to be reviewed on appeal in the brief is correct. Upon further reviewing, it is found that an error has been made wherein claim 28 has been grouped with claims 29-32 in the Final Rejection dated 7/7/04. This error also exists in the Appellant's statement of ground of rejection to be reviewed on appeal in the brief. For the record, the ground of rejection to be reviewed on appeal should be as followed:

- Claims 16, 24, 25 and 28 stand rejected under 35 U.S.C. 102(b) as being anticipated by Teeri (USP 3,836,195).
- Claims 1-6, 8, 9, 13, 14, and 29-32 stand rejected under 35 U.S.C. 103(a) as being obvious over Teeri (USP 3,836,195) in view of Rode (USP 4,067,585).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is incorrect. The status identifier for claim 17 as shown in the "Appendix" should have been --(Withdrawn)-- instead of "(Original)".

(9) Prior Art of Record

3,836,195	TEERI	9-1974
4,067,585	RODE	1-1978

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

- Claims 16, 24, 25 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Teeri (USP 3,836,195).
- Claims 1-6, 8, 9, 13, 14, and 29-32 are rejected under 35 U.S.C. 103(a) as being obvious over Teeri (USP 3,836,195) in view of Rode (USP 4,067,585).

10a. Claims 16, 24, 25 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Teeri (USP 3,836,195).

Re: claim 16, Teeri shows an adjustable disc spring system as in the present invention, comprising: a plurality of beveled disc springs 1 axially aligned with an adjustable spacer 3; wherein spacer 3 is plastically compressible. Note that Teeri uses metal as the material for the spacer. An inherent property of metal is plastically compressible when the amount of force being applied has exceeded the elasticity of the metal. Claim 16 simply claims the spacer is plastically compressible. Teeri's metal spacer is plastically compressible since it is an inherent property of metal to be plastically compressible.

Re: claims 24, 25 and 28, as shown in the figures.

10b. Claims 1-6, 8, 9, 13, 14 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Teeri (USP 3,836,195) in view of Rode (USP 4,067,585).

Re: claim 1, Teeri shows an adjustable disc spring system as in the present invention, comprising: at least one beveled disc spring 1 axially aligned with an adjustable spacer 3; wherein spacer 3 is plastically compressible. Teeri lacks the

disclosure of plastically compressible to allow axial adjustment in response to a force placed on said spacer as claimed. Rode teaches the concept of plastically compressing an adjustable spacer 18 wherein said spacer is compressed to plastically deform so that it can be adjusted to provide a desired height and load in the Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Teeri's adjustable disc spring assembly to have included a spacer such as taught by Rode to conveniently adjust the height of the spacer at the same time accommodate a wider range of loads as taught by Rode.

Re: claims 2-4, Teeri shows an entrapping flange comprises one curved surface concave to said disc spring and a curved compressible portion between said at least one entrapping flange on spacer 3 that is the mirror image of 7 on spacer 2.

Re: claims 5 and 6, Teeri discloses an offset as a tapered portion to receive at least one entrapping flange in column 2, lines 22-25.

Re: claims 8 and 9, as shown in the figures.

Re: claims 13 and 14, as shown in the figures.

Re: claims 29-32, Teeri shows a method of adjusting a disc spring system comprising: axially aligning at least one beveled disc spring 1 with an adjustable spacer 3 by inserting said disc spring into an entrapping flange wherein said disc is a Belleville washer; and compressing the adjustable spacer 3 in column 2, lines 22-25. Teeri shows the method of adjusting an adjustable disc spring system by providing a spacer 3 with different heights as shown in figures 6 and 7. Teeri lacks the disclosure of plastically compressing the spacer. Rode teaches the method of plastically compressing an

adjustable spacer 18 so that it can be adjusted to provide a desire height and a desired load in the Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Teeri's method of adjusting a disc spring system to have included the step of plastically compressing a spacer such as taught by Rode as a convenient way to achieve a desire height and a desired load at the same time helping expanding the range of loads that can be accommodated by the spring assembly.

(11) Response to Argument

11a. Rejections Under 102(b) Over Teeri:

Appellant argues that Teeri does not show an adjustable spacer, which is made of a plastically compressible material to allow for adjustment and preloading.

Appellant's argument is more specific than the claim language. First, Teeri does clearly show an adjustable spacer. Teeri's adjustable spacer is shown in various embodiments such as numbered 3 in figures 1, 4; numbered 12, 13 in figure 8; numbered 14, 15 in figures 9 and 11; and numbered 16, 17 in figure 10. Teeri further explains that the adjustable spacer could be made of metal, rubber or rubber with a reinforced metal layer. Rubber is adjustable in that rubber allows freedom for the Belleville springs to move laterally or axially due to the inherency of the elastomerical property of rubber. Metal is adjustable in that the material can be bent and shaped to any desired configuration. Clearly, Teeri's spacer is adjustable whether it is made of rubber or metal or metal reinforced rubber. Secondly, Teeri's adjustable spacer is

plastically compressible. Claim 16 simply states "said adjustable spacer is **plastically compressible** in a substantially axial direction relative to said plurality of beveled disc springs." Claim 16 does not claimed --said adjustable spacer is **plastically compressed** and **plastically deformed** in a substantially axial direction relative to said plurality of beveled disc springs in order **to provide a preloading** of a certain predetermined spring constant to the adjustable spring system--. As stated, claim 16 simply claims an inherent property of a material that is plastically compressible. Rubber and metal are both plastically compressible, which is an inherent property to both materials. Teeri's spacer is made of rubber, metal or metal reinforced rubber; hence, Teeri's spacer is inherently plastically compressible.

11b. Rejections Under 103(a) Over Teeri in view of Rode:

Appellant argues that there is no motivation to combine Teeri in view of Rode. The combination is hindsight based on Appellant's disclosure. Furthermore, Rode teaches away from Teeri and would be improper to combine.

Appellant argues that there is no motivation to combine Teeri in view of Rode because "Rode teaches an adjustable spacer which may be plastically deformed to particular dimensions as noted above, but, Teeri does not disclose the desirability of permanently or plastically deforming any portion thereof nor the desirability of combining an adjustable spacer therewith". Teeri states in column 1, lines 41-46 that it is desirable in a Belleville spring assembly to comprise the binding rings in order to take advantage of the progressive deformation area. Meaning the binding rings are designed to help

increase the spring constant of the spring assembly so that the spring force would further increase when deformation increases. Teeri further shows in figures 6 and 7 how the height of the spacer is changed to help produce different spring constant for different spring assemblies. It is true that Teeri is adjusting the height of Teeri's spacer differently than the way Appellant is adjusting the height of Appellant's spacer. However, the desire for adjustability is clearly stated and shown in the figures. Rode is merely relied upon for another type of spacer that is old and well known in the art of springs. Rode adjusts the height of Rode's spacer by plastically compressing to plastically deform Rode's spacer, the same way as Appellant adjusting the height of Appellant's spacer. Why would an ordinary skill person in the art of spring at the time of the invention not utilize an old and well-known spacer of Rode in the spring assembly of Teeri as a convenient means to adjust the spacer? What would prevent an ordinary skill in the art of springs at the time of the invention to not take advantage of the spacer of Rode in order to further improve the spring assembly by expanding the range of loads that the spring assembly can accommodate? A well known adjustable spacer that is convenient to use and can help expanding the range of loads that a spring assembly can accommodate such as Rode's is an absolutely obvious and logical combination to an existing spring assembly of Teeri.

The desire for adjustability in the spring assembly by adjusting the height of a spacer is clearly stated in the patent to Teeri. The teaching of a convenient adjustable spacer, which helps expanding the range of loads that the spring assembly can accommodate, is taught by Rode. It is not hindsight. It is a natural progression in the

constant improvement of an existing spring assembly using an old, well-known and readily available spacer.

It is believed that Rode does not teach away from Teeri but lends itself to a proper combination to Teeri to produce an improved spring assembly. Appellant argues that Rode discloses a spacer, which is deformed to create a predetermined load while in contrast, Teeri shows a dynamic load capacity of the spring assembly. Teeri states in column 1, lines 41-46, "These binding rings bind the Belleville disk springs into one assembly which can be loaded in both directions, while they make it possible to assembly a spring pillar from planelike or slightly conical Belleville disk spring so that advantage can be taken of their progressive deformation area." From this passage, one can see that the dynamic load capacity of the spring assembly is mainly provided by the Belleville springs. The spacers are there to help provide a convenient pillar structure that can be loaded in both directions and also to help adjusting the spring constant of the spring assembly. To combine Rode's spacer to Teeri's spring assembly would not hinder the inherent dynamic load capacity of the Belleville springs. Rode's spacer not only still provides the convenient pillar shape for the assembly, Rode's spacer would help expanding the range of loads that Teeri's spring assembly can accommodate.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Lan Nguyen
Primary Examiner
Art Unit 3683

XLN XLN
June 30, 2005

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